

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2003-NM-258-AD; Amendment 39-13516; AD 2004-05-21]

RIN 2120-AA64

Airworthiness Directives; Bombardier Model DHC-8-102, -103, -106, -201, -202, -301, -311, and -315 Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to certain Bombardier airplanes as listed above. This action requires lubrication of the flap actuators, repetitive measurements ("checks") of the backlash of the flap actuators, determination of the next backlash measurement interval, and replacement of discrepant actuators with new or overhauled actuators if necessary. This action is necessary to prevent the mechanical disconnection of a flap actuator, which, if followed by failure of the flap panel's second actuator due to increased loading, could result in flap asymmetry and consequent loss of controllability of the airplane. This action is intended to address the identified unsafe condition.

DATES: Effective March 25, 2004.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of March 25, 2004.

Comments for inclusion in the Rules Docket must be received on or before April 9, 2004.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2003-NM-258-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9 a.m. and 3 p.m., Monday through Friday, except Federal holidays. Comments may be submitted via fax to (425) 227-1232. Comments may also be sent via the Internet using the following address: 9-anm-iarcomment@faa.gov. Comments sent via the Internet must contain "Docket No. 2003-NM-258-AD" in the subject line and need not be submitted in triplicate. Comments sent via fax or the Internet as attached electronic files must be formatted in Microsoft Word 97 or 2000 or ASCII text.

The service information referenced in this AD may be obtained from Bombardier, Inc., Bombardier Regional Aircraft Division, 123 Garratt Boulevard, Downsview, Ontario M3K 1Y5, Canada. This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, New York Aircraft Certification Office, FAA, 1600 Stewart Avenue, suite 410, Westbury, New York; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Ezra Sasson, Aerospace Engineer, Systems and Flight Test Branch, ANE-172, New York Aircraft Certification Office, FAA, 1600 Stewart Avenue, suite 410, Westbury, New York 11590; telephone (516) 228-7320; fax (516) 794-5531.

SUPPLEMENTARY INFORMATION: Transport Canada Civil Aviation (TCCA), which is the airworthiness authority for Canada, notified the FAA that an unsafe condition may exist on certain Bombardier Model DHC-8-102, -103, -106, -201, -202, -301, -311, and -315 airplanes. TCCA advises that field reports indicate that the ballscrew and nut assembly of the flap drive actuators may wear to the extent that the ballscrew mechanically disconnects from the ballnut. There have been four known incidents that involved actuator disconnect. The mechanical disconnection of the ballscrew from the ballnut can lead to binding of the flap system. If both actuators of an extended flap panel disconnect, the affected panel may be aerodynamically backdriven, resulting in asymmetric flaps. This condition, if not corrected, could result in loss of controllability of the airplane.

Maintenance Schedule

Analysis of new data indicates the need to reduce the current interval specified in the Bombardier Model DHC-8 maintenance program for measuring the backlash of the flap ballscrew actuators. Based on the new data, the FAA and TCCA have determined that this interval must be reduced from a "2C" check (currently a maximum of 10,000 flight hours) to a variable interval (a maximum of 3,000 flight cycles) that is based on each previous backlash measurement and actuator wear rate.

Explanation of Relevant Service Information

Bombardier has issued Alert Service Bulletin A8-27-98, dated February 20, 2003, which describes procedures for measuring the backlash of the flap actuators. The service bulletin also provides the means to calculate each subsequent interval for repeating the backlash measurement, based on the wear rate and previous backlash measurement. If a certain backlash length is exceeded, the service bulletin recommends replacing the actuator with a serviceable actuator before further flight.

Bombardier has revised certain procedures for lubricating the flap actuators, which are described in the temporary revisions (TRs) to the de Havilland Dash-8 Maintenance Program Manual listed in the following table:

DE HAVILLAND MAINTENANCE PROGRAM MANUAL TRS			
Model	PSM No.	de Havilland TR No.	Task No.
DHC-8-102, -103, and -106 airplanes	1-8-7	MRB-143	2750/04
DHC-8-201 and -202 airplanes	1-82-7	MRB 2-21	2750/04
DHC-8-301, -311, and -315 airplanes	1-83-7	MRB 3-152	2750/04

These TRs introduce procedures that incorporate use of new lubrication tools and a particular grease that will improve lubrication of the flap actuators and consequently reduce component wear.

Accomplishment of the actions specified in the service information is intended to adequately address the identified unsafe condition. TCCA mandated accomplishment of this service information and issued Canadian airworthiness directive CF-2002-26R1, dated October 6, 2003, to ensure the continued airworthiness of these airplanes in Canada.

FAA's Conclusions

These airplane models are manufactured in Canada and are type certificated for operation in the United States under the provisions of section 21.29 of the Federal Aviation Regulations (14 CFR 21.29) and the applicable bilateral airworthiness agreement. Pursuant to this bilateral airworthiness agreement, TCCA has kept the FAA informed of the situation described above. The FAA has examined the findings of TCCA, reviewed all available information, and determined that AD action is necessary for products of this type design that are certificated for operation in the United States.

Explanation of Requirements of Rule

Since an unsafe condition has been identified that is likely to exist or develop on other airplanes of the same type design registered in the United States, this AD is being issued to prevent the mechanical disconnection of a flap actuator, which, if followed by failure of the panel's second actuator due to increased loading, could result in flap asymmetry and consequent loss of controllability of the airplane. This AD requires a one-time actuator lubrication, repetitive measurements ("checks") of the backlash of the flap actuators, determination of each subsequent backlash check interval, and replacement of discrepant actuators with new or overhauled actuators if necessary. The actions are required to be accomplished in accordance with the service information described previously. The compliance times for the initial measurement range from 30 days to 3,000 total accumulated flight cycles on the actuator, with each subsequent interval ranging from 45 to 3,000 flight cycles, depending on each previous measurement and the wear rate. The FAA and TCCA agree on the following minor variations between the airworthiness directives:

1. Part A., paragraph 1., of the TCCA airworthiness directive mandates revising the TCCA-approved maintenance schedule by incorporating the applicable flap actuator lubrication task specified in the maintenance program manual TRs described previously. This (FAA) AD requires a one-time lubrication, but the lubrication maintenance schedule is not expressly required by this AD, because the lubrication schedule itself does not address the unsafe condition identified in this (FAA) AD. Rather, the lubrication schedule was established to reduce wear and tear on the flap actuators (thereby extending actuator life and decreasing costs).

2. Part A., paragraph 3., of the TCCA airworthiness directive mandates a specific compliance time, task card, and lubrication tools and grease for the lubrication. This (FAA) AD does not include these requirements, which are specified in the task card as part of the maintenance manual TRs (and specified in part A., paragraph 2., of the TCCA airworthiness directive); operators are expected to comply with the current, MRB-required task card. If an operator cannot comply with this AD because the specific grease or tools are unavailable within the required compliance time, the FAA may consider requests to extend the compliance time, as provided by paragraph (f) of this AD, if data are presented to justify such an extension.

3. The TCCA airworthiness directive mandates sending an inspection report to Bombardier or the actuator manufacturer (Hamilton Sundstrand). This (FAA) AD does not require such a report.

4. The TCAA airworthiness directive requires that certain actions be done "not later than during the next A-check." Paragraph (a)(2) of this (FAA) AD identifies that interval as 500 flight hours, which for all affected operators is the same as the A-check.

5. In this (FAA) AD, Notes 1 through 12 of the TCCA airworthiness directive have been either excluded as redundant or incorporated as guidance into the requirements.

Determination of Rule's Effective Date

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications shall identify the Rules Docket number and be submitted in triplicate to the address specified under the caption ADDRESSES. All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Submit comments using the following format:

- Organize comments issue-by-issue. For example, discuss a request to change the compliance time and a request to change the service bulletin reference as two separate issues.
- For each issue, state what specific change to the AD is being requested.
- Include justification (e.g., reasons or data) for each request.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this rule must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2003-NM-258-AD." The postcard will be date stamped and returned to the commenter.

Regulatory Impact

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and that it is not a "significant regulatory action" under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC



U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2004-05-21 Bombardier, Inc. (Formerly de Havilland, Inc.): Amendment 39-13516. Docket 2003-NM-258-AD.

Applicability: Model DHC-8-102, -103, -106, -201, -202, -301, -311, and -315 airplanes; certificated in any category; serial numbers 003 and subsequent; equipped with any flap actuator having part number 734181, 734374, or 755216.

Compliance: Required as indicated, unless accomplished previously.

To prevent the mechanical disconnection of a flap actuator, which, if followed by failure of the flap panel's second actuator due to increased loading, could result in flap asymmetry and consequent loss of controllability of the airplane, accomplish the following:

Actuator Lubrication

(a) Lubricate the flap actuators at the later of the times specified in paragraphs (a)(1) and (a)(2) of this AD, in accordance with the product support manuals (PSMs) and temporary revisions (TRs) to the maintenance program manual listed in Table 1 of this AD.

(1) Within 2,500 flight hours or 18 months after the most recent flap actuator lubrication, whichever occurs first.

(2) Within 500 flight hours after the effective date of this AD.

**TABLE 1.—DE HAVILLAND MAINTENANCE
PROGRAM MANUAL TRS**

TR	PSM	Task No.
MRB-143	1-8-7	2750/04
MRB 2-21	1-82-7	2750/04
MRB 3-152	1-83-7	2750/04

Initial Backlash Measurement

(b) Table 2 of this AD identifies service information references for the backlash measurement. Operators may have previously used one of these references to measure the actuator backlash.

TABLE 2.—BACKLASH MEASUREMENT REFERENCES

Reference	Date
Bombardier Alert Service Bulletin A8-27-95	October 31, 2001.
Bombardier Alert Service Bulletin A8-27-95, Revision A	April 17, 2002.
Bombardier Alert Service Bulletin A8-27-98	February 20, 2003.

DHC-8 Maintenance Task Card Manual, Task No. 2750/18	November 23, 2001, or later revisions issued before the effective date of this AD.
Transport Canada Airworthiness Directive CF-2002-26	May 2, 2002.

Measure the backlash of each actuator at the applicable time specified in paragraph (b)(1) or (b)(2) of this AD, in accordance with the Accomplishment Instructions of the applicable Hamilton Sundstrand Service Bulletin 734181-27-A5 or 734374-27-A5, both of which form part of Bombardier Alert Service Bulletin A8-27-98, dated February 20, 2003.

(1) If the most recent backlash measurement has been done before the effective date of this AD in accordance with a reference listed in Table 2 of this AD: Do the applicable action specified in Table 3 of this AD.

TABLE 3.—INTERVALS: BACKLASH MEASUREMENT DONE PREVIOUSLY

If the measurement was—	Then—
	Do the initial measurement within the later of:
(i) ≤ 0.027 inch	3,000 flight cycles since the most recent measurement, or 90 days after the effective date of this AD.
(ii) > 0.027 inch and < 0.060 inch, and the wear rate is recorded or can be calculated.	The applicable interval specified in Service Bulletin A8-27-98, or 90 days after the effective date of this AD.
(iii) > 0.027 inch and < 0.060 inch, but the wear rate is unknown or cannot be calculated due to lack of data.	The applicable interval, based on a wear rate of 0.010 inch per 1,000 flight cycles, as specified in Service Bulletin A8-27-98, or 90 days after the effective date of this AD.
(iv) ≥ 0.060 inch and < 0.070 inch, and the wear rate is recorded or can be calculated.	The applicable interval specified in Service Bulletin A8-27-98, or 30 days after the effective date of this AD.
(v) ≥ 0.060 inch and < 0.070 inch, but the wear rate is unknown or cannot be calculated due to lack of data.	The applicable interval, based on a wear rate of 0.010 inch per 1,000 flight cycles, as specified in Service Bulletin A8-27-98, or 30 days after the effective date of this AD.
(vi) < 0.050 inch, but not recorded	1,000 flight cycles since the most recent measurement, or 90 days after the effective date of this AD.
(vii) ≥ 0.070 inch	Replace the flap actuator with a new or overhauled part: Before further flight.

(2) If no backlash measurement has been done as of the effective date of this AD in accordance with a reference listed in Table 2 of this AD: Do the next measurement at the applicable time specified in Table 4 of this AD.

TABLE 4.—INTERVALS: NO PRIOR BACKLASH MEASUREMENT

If the actuator, since new or overhauled, has accumulated—	Then do the initial measurement within—
(i) $\leq 3,000$ total flight cycles	3,000 total flight cycles since new or overhauled, or within 180 days after the effective date of this AD, whichever occurs later.
(ii) $> 3,000$ total flight cycles	60 days after the effective date of this AD.

Determination of Subsequent Intervals

(c) After each actuator backlash measurement required by this AD, determine (calculate) the next measurement interval by the applicable time specified in Table 5 of this AD. To determine each interval, use paragraph 2.A.(4)(b) and Figure 4 of the applicable Hamilton Sundstrand Service Bulletin 734181-27-A5 or 734374-27-A5, both of which form part of Bombardier Alert Service Bulletin A8-27-98, dated February 20, 2003. Alternatively, the Bombardier spreadsheet "Dash 8 Q100/200/300 Flap Ballscrew Backlash Data, Data Recording and Charting Utility," document number BM-DHI-RM-APP01, may be used.

TABLE 5.—TIMEFRAME TO DETERMINE SUBSEQUENT INTERVALS

For any recorded backlash that was—	Determine (calculate) the next interval—
(1) ≥ 0.060 inch and < 0.070 inch	Within 45 flight cycles after the recorded completion of backlash measurement.
(2) > 0.027 inch and < 0.060 inch	Within 30 days after the recorded completion of backlash measurement.
(3) ≤ 0.027 inch	Within 3,000 flight cycles after the recorded completion of backlash measurement.
(4) Not done because the actuator was new or newly overhauled	Before the accumulation of 3,000 total flight cycles on the actuator.

Subsequent Repetitive Measurements

(d) After the initial backlash measurement required by paragraph (b) of this AD, repeat each subsequent measurement within the applicable interval specified in paragraph (c) of this AD, in accordance with paragraph 2.A.(1) of the applicable Hamilton Sundstrand Service Bulletin 734181-27-A5 or 734374-27-A5, both of which form part of Bombardier Alert Service Bulletin A8-27-98, dated February 20, 2003.

Follow-on and Corrective Actions

(e) After each backlash measurement required by paragraph (b) or (d) of this AD, do the actions required by paragraph (e)(1) or (e)(2), as applicable, of this AD. Do the actions in accordance with the Accomplishment Instructions of Bombardier Alert Service Bulletin A8-27-98, dated February 20, 2003.

(1) For any measured backlash of less than 0.070 inch: Repeat the measurement within the interval specified in paragraph (c) of this AD.

(2) For any measured backlash of 0.070 inch or more: Replace the actuator with a new or overhauled actuator before further flight.

Alternative Methods of Compliance

(f) In accordance with 14 CFR 39.19, the Manager, New York Aircraft Certification Office (ACO), FAA, is authorized to approve alternative methods of compliance for this AD.

Incorporation by Reference

(g) Unless otherwise specified in this AD, the actions must be done in accordance with Bombardier Alert Service Bulletin A8-27-98, dated February 20, 2003; and the de Havilland temporary revisions to the applicable de Havilland Dash-8 Program Support Manuals listed in Table 6 of this AD:

TABLE 6.—DE HAVILLAND TEMPORARY REVISIONS

Service information	PSM	Task No.	Date
Temporary Revision MRB-143	1-8-7	2750/04	May 18, 2001.
Temporary Revision MRB 2-21	1-82-7	2750/04	May 18, 2001.
Temporary Revision MRB 3-152	1-83-7	2750/04	May 18, 2001.

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Bombardier, Inc., Bombardier Regional Aircraft Division, 123 Garratt Boulevard, Downsview, Ontario M3K 1Y5, Canada. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, New York Aircraft Certification Office, FAA, 1600 Stewart Avenue, suite 410, Westbury, New York; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

Note 1: The subject of this AD is addressed in Canadian airworthiness directive CF-2002-26R1, dated October 6, 2003.

Effective Date

(h) This amendment becomes effective on March 25, 2004.

Issued in Renton, Washington, on March 1, 2004.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 04-5069 Filed 3-9-04; 8:45 am]

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